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IMMUNOLOGY IN THE LIGHT OF BOSH'YAN'S DISCOVERIES

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Digest

If the bacterial form of the causative factor plays a decisive role in the pathogenesis of the disease (for instance, in anthrax or swine erysipelas), the therapeutic serum is highly effective, because it transforms the microbes into the phagic or virus form. On the other hand, it is known that hyperimmune sera are therapeutically ineffective even in the early stage of the disease, i.e., before the effect of the nervous system on the pathological process has become of pronounced importance.

This phenomenon can be explained on the basis of Bosh'yan's theory. While the causative factors of virus diseases exist in the bacterial form, the latter has a pathogenic effect on the organism only as a result of the changes produced in the organism by the virus form. The virus form has a predominant pathogenic effect in diseases such as swine plague, but a hyperimmune serum would be useless if applied in the therapy of the disease. Sera still are of benefit in the prophylaxis of virus diseases, however.

Hitherto the preparation of antivirus sera has been connected with great difficulties. G. M. Bosh'yan's discovery resolves these difficulties, because it now becomes possible to hyperimmunize animals with the bacterial form of the causative factor which in its virus form produces the disease.

The new results also explain the failure to treat virus-caused diseases by chemotherapeutic means. Furthermore, the fact that chemotherapeutic remedies are effective in certain virus diseases (novarsenol in contagious equine pleuro-pneumonia, sulfa drugs in human venereal lymphogranuloma), leads to the conclusion that the bacterial rather than the virus form of the causative factor has a decisive role in these diseases.

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Although some investigators hold that antibacterial immunity is distinct from allergy and independent of it (cf work by V. M. Berman and collaborators on tuberculosis and brucellosis), no such distinction can be made: a heightened sensitivity of the organism must accompany immunity. A. T. Kravchenko and A. G. Galanov, who investigated, on isolated organs, a condition produced by infection which undoubtedly affects the whole organism and is not restricted to individual organs, came to the conclusion that there is a fundamental difference between allergy and anaphylaxis. They stated that the question of interrelationship between the allergy produced by infection and the immunity of cells must be left open for the present. Work of this type is based on Virchow's conceptions and makes the problem unnecessarily involved instead of clarifying it.

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